

MICROGRAVITY SCIENCES AND PROCESSES SYMPOSIUM (A2)
Gravity and Fundamental Physics (1)

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T-SAGE, THE MICROSCOPE MISSION PAYLOAD READY TO TEST THE EQUIVALENCE
PRINCIPLE IN SPACE

Abstract

The MICROSCOPE mission is fully dedicated to the in-orbit test of the Universality of free fall, the so-called Weak Equivalence Principle (WEP), with an expected accuracy better than $1E-15$. The measurement will be obtained by the SAGE (Space Accelerometer for Gravitational Experimentation) instrument which constituted the main payload of the mission. This is a differential electrostatic accelerometer containing two proof masses whose positions are controlled in six degrees of freedom (three translations, three rotations) via electrostatic forces. The control is performed by proximity electronics containing an ultra-sensitive capacitive detector integrated in a digital servo loop. The MICROSCOPE payload has undergone a long development process due to its high accuracy and its high technology most of the time at the limits of the state of the art. Both the instrument and the satellite have now passed successfully the Critical Design Review, one of the main steps to the launch. The integration in the satellite has started in order to be ready for a launch on board Soyuz as a passenger in the second quarter of 2016. After a general description of the MICROSCOPE space mission and the instrument development challenge, the paper will present the very last step of the flight-model payload verification in order to assess the good health status of the instrument as close as possible to the launch date.